Proceedings of the Prehistoric Society 68, 2002, pp. 41–59

Taking the High Ground: Continental Hill-forts in Bronze Age Contexts

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This paper was given as the Europa lecture for 2001

Ditches, walls, and palisades are extant in continental Europe from as early as the Neolithic, but important aspects changed in the course of the 2nd millennium BC. *A review of the spectrum of dated sites from Central Europe shows that the expansion of metalworking techniques preceded the widespread occupation of high ground. Hill-top sites at crossroads and river crossings proved to be a permanent feature, though shifts in location occurred frequently. The motivation for the construction of walls and ramparts was probably not uniform. Certain walls were clearly built to be seen from afar. Hence, they can be explained as signs of presence and/or prominence. In other cases the aspect of enhanced security deserves special attention. The wide variation in size and regional settings of hill-forts as well as the divergent traces of occupation invalidate any unitary explanation.*

How high is a high ground supposed to be? The relative and absolute altitude of settlements in prominent positions varied in a wide range, as two examples can demonstrate (Figs 1–2). A loess plateau in the Hungarian plain would not be considered as a high ground in the alpine region, but it is certainly an elevated point in its environs. On the other hand, hill-top settlements in the Alps are normally not situated on the highest peaks, but rather in a commanding position with regard to the valley floor. These obvious divergences reflect first of all regional landscape variation. Every landscape feature is embedded in a wider topographic context, where size and prominence are perceived in relation to the whole unit. Human perception of landscape and its translation into cultural terms are issues of concern in archaeology and of continuing relevance today. Early written records explicitly assert the importance of landscape aspects for human world view. For example, mountains are a prominent theme in the traditions of the Near East and the Aegean as well, with Mount Sinai in the Bible and Mount Olympos in the Greek sources as pre-eminent examples. Connections with religion and ritual are evident in these cases. However, they cannot be taken as the unique key appropriate to explain activities on high ground, for different connotations occurred elsewhere. In continental Europe, the frequency of medieval castles in elevated positions highlights the importance of strategic considerations in history. High ground was most relevant for military and security purposes, but equally interesting for the demonstration of elite life-style. The cultural and social webs of every period promoted more or less distinct changes of conceptions.

Already in the early days of archaeological fieldwork, ancient fortifications were found on many isolated spurs and plateaus. Subsequently, competing explanations were linked to these places. In France, toponyms like *Camps Césaire* (Caesar's Camp) or *Fort des Anglais* (Fort of Englishmen) testify a strong commitment to history (Diot *et al.* 1986; Buchsenschutz 1984). The same is true for Switzerland, but connotations were, in this case, closely related to a conception of collective security, based on local tradition and experience. Hence, hill-forts were preferably explained as refuge sites constructed by the population in order to protect women, children, and livestock against foreign aggression. In southern Germany, too, the refuge model was in vogue. For example, some of the highest and steepest ramparts were supposed to belong to the

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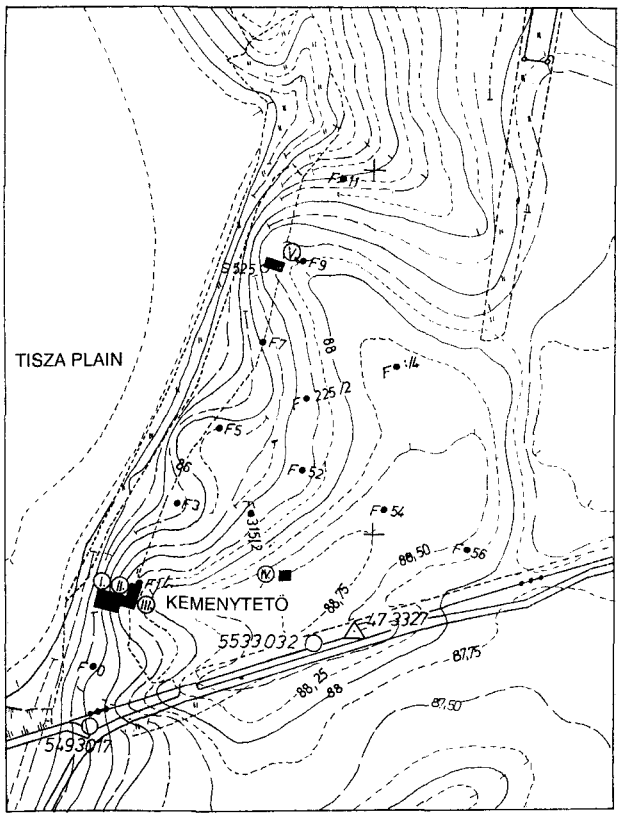

Fig. 1
Tiszaug-Kéménytetö, an Early Bronze Age Tell site in Hungary (Csányi & Stanczik 1988, 241, fig. 3)

preventive measures taken against the Magyar raids of the 10th century AD (cf. discussion by Brachmann (1993, 191)). However, the actual position of many hill-forts does not support such an attribution. Instead of being situated in ambush and at a safe distance from the routes of potential aggressors, they are exposed to sight from far. This is a clear contradiction to the refuge model.

Later on, paradigms shifted in other directions. The Central Place concept, developed in the 1930s, influenced the reasoning of prehistorians rather late, but all the more persistently. It was applied with preference to Iron Age hill-forts, but equally considered for the Late Bronze Age precursors. In France, settlement hierarchies are the preferred model, discussed already for the Neolithic period (eg, Pétrequin & Pétrequin 1988, 50). In eastern central Europe progressive social differentiation was thought to have been linked to the rapid evolution of Early Bronze Age metallurgy, and the occurrence of metal hoards in sites with fortifications fitted with this model. The attempts to find connections between Mycenaean Greece and the continent acted as an incentive (cf. Vladár 1973). Meanwhile, a shift of paradigm occurred (cf. Lichardus & Vladár 1996).

OVERVIEW OF THE EVIDENCE

Hill-top sites are not necessarily hill-forts, and furthermore, walled settlements can be found on low ground, too.[1] However, the coincidence of fortifications and high ground is a relatively frequent feature in continental Europe. The area in focus here is the heartland of major European rivers, from eastern France to Slovakia. It is surrounded by hills and mountain chains, where high ground is plentiful around. New results of fieldwork and subsequent analytical investigations offer fresh insight, and the wide variability of the evidence should not be neglected for the sake of a unifying model. The enclosed areas are sometimes very large, but variation in size is stunning and can be taken as a potential indicator for functional diversity. Obviously, a circumscribed area of 50 ha could have been created with different intentions than an enclosed space of 5000 m^2. Three types of sites were arranged in a diagram (Fig. 3) according to size: Late Bronze Age (LBA) hill-forts, which are clearly dominant in

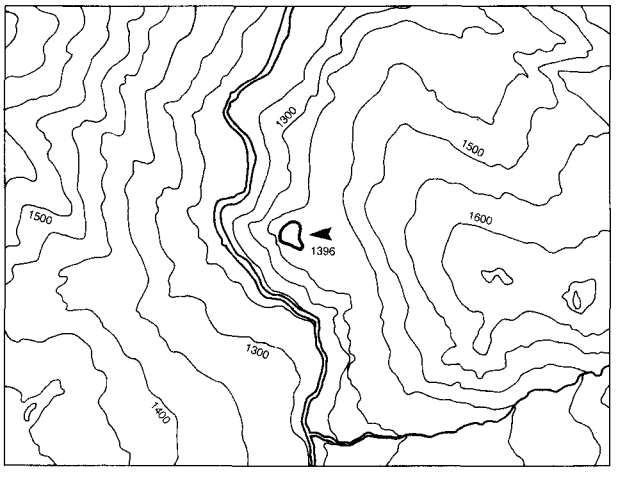

Fig. 2
Sotciastel, a hill-top site with stone wall in the Italian alps (Tecchiati 1998, 399).

Central Europe, Early Bronze Age (EBA) sites with a stone wall, typically found in the Alpine valleys, and Tell type settlements of the same period in the Tisza region, ie, in southern Slovakia and Hungary.

In Germany and France, the large hill-top sites with radiocarbon-dated ramparts seem to be essentially a LBA feature. However, the general layout of many hill-forts is still better known than their exact position in time. Archaeological classification started from the visible elements (cf. Jockenhövel 1990; Rind 1999). Transverse and circular ramparts are the basic schemes of enclosure. They proved to be almost time-invariant and can occur in combination (Fig. 4). In most cases, only relatively small-scale excavations were possible. The wall constructions were investigated more thoroughly than the interior, for archaeologists hoped to detect chronological sequences there. Under the auspices of Ancient Heritage laws this is a reasonable priority, for monuments of well-established antiquity are normally protected by laws which cannot be applied to landscape features of unknown age and genesis. In several cases observed superpositions helped, indeed, to define different periods of occupation. However, the original idea that certain schemes of construction should correspond regularly to distinct periods of the past did not fit conclusively with the evidence.

According to current knowledge, the overall time-scale involved is very broad. Ditches, walls, and palisades were already constructed during the Neolithic period, and the latest earthworks in Switzerland are relics of the Napoleonic war. Even limited investigations showed that most of the hill-top sites were occupied repeatedly and in different periods, though not continuously. The Bavarian repertory of sites published by Michael Rind (1999) illustrates this fact. Relatively few radiocarbon dates are available, and in certain cases, they did not correspond to the period best represented in the spectrum of finds. At a closer look, the dots on the existing maps of hill-forts do not actually describe a pattern of strictly coeval strongholds. Nonetheless, they indicate that high ground became fully integrated *in the regional settlement networks of the post-*Neolithic periods.

In recent years, new investigations have been undertaken for a variety of reasons. The activities of people with metal-detectors acted as an unpleasant accelerator and forced archaeological intervention. At the same time, several institutes initiated case studies

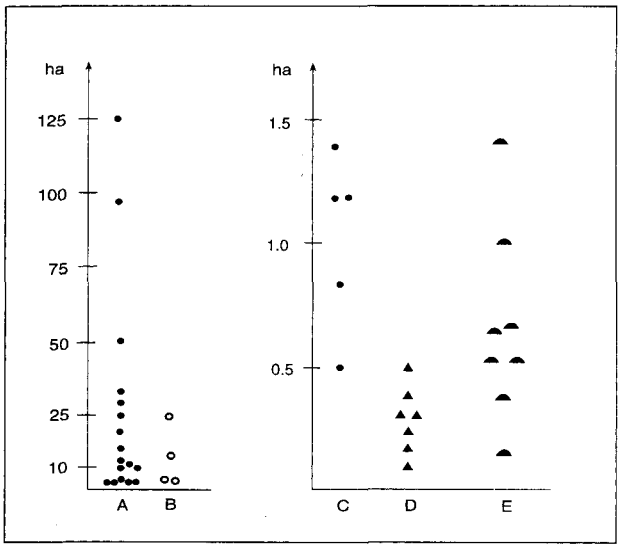

Fig. 3
The dimensions of dated hill-forts in central Europe. A. Large Late Bronze Age sites. B. Large Early and Middle Bronze Age sites. C. Small Late Bronze Age sites. D. Alpine sites with stone wall. E. Early Bronze Age Tells.

that integrated the environment of hill-top sites in a transdisciplinary research design.[2] These projects raised the level of discussion significantly and will enhance the understanding of settlement processes in the near future.

EARLY BRONZE AGE STRUCTURES

An almost inflationary expansion of metal production, distribution and consumption occurred in central Europe between *c.* 2200 and 1800 cal BC[3] and continued thereafter. It is best reflected in the metal hoards of the period, but also in the grave ritual, which absorbed copper, bronze, and gold in graded amounts. According to present knowledge, the settlements of the first phase were constructed mainly in a dispersed layout on low ground. The Traisen valley in Austria, with its rare coincidence of living space and graves, offers the best insight so far. Hamlets composed of large and small buildings were organised along the edge of the lower river terrace while the cemeteries followed behind. In this valley, the hill-top sites are still unexplored, and only a few chance finds indicate human activity on high ground (Neugebauer & Blesl 1998).

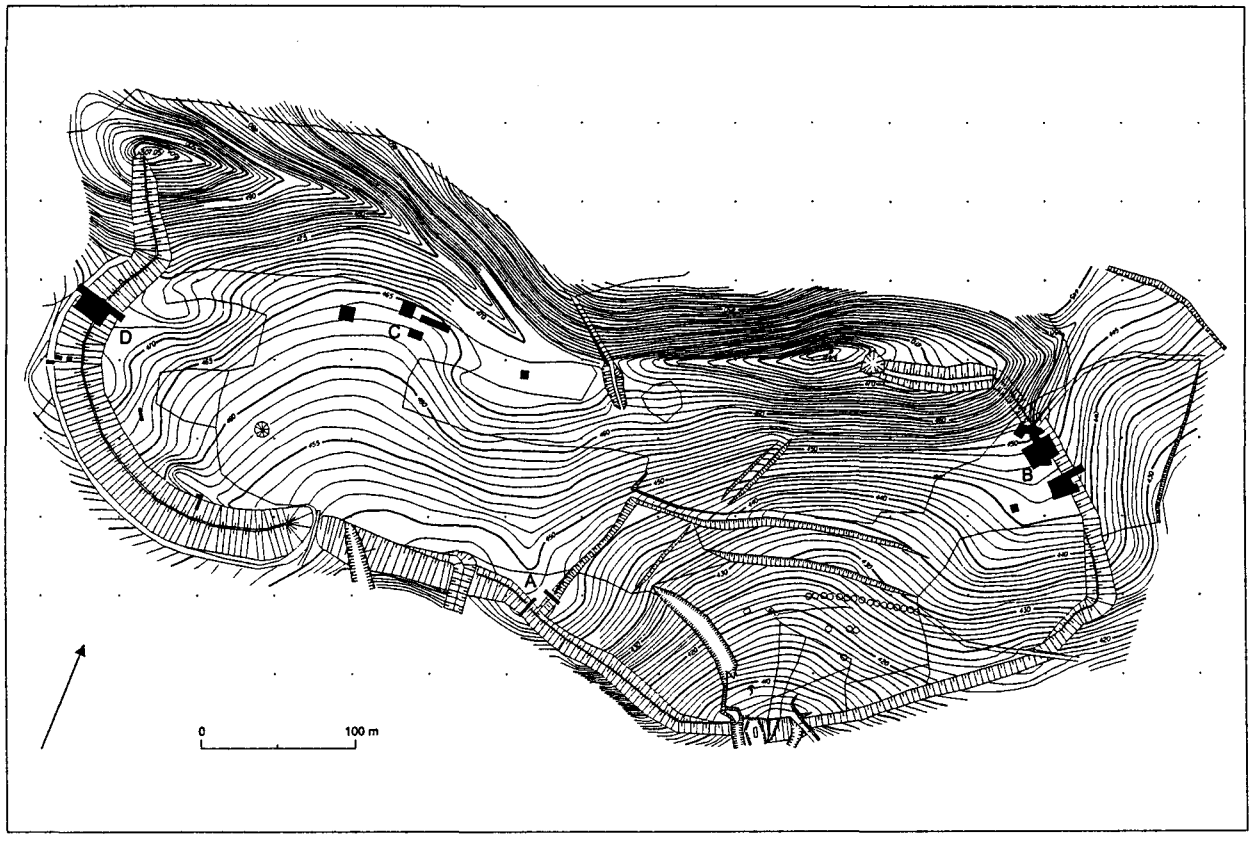

Fig. 4
Zemianske Podhradie, a Late Bronze Age hill-fort in Slovakia (Veliačik & Romsauer 1998, 226, fig. 1)

In the adjacent regions of eastern Austria (eg, Waidendorf-Buhuberg (Hahnel 1988) and Böheimkirchen (Neugebauer 1977)[4]), Moravia (cf. Stuchlík 1992) and Slovakia (conveniently summarised in Furmánek *et. al* 1999) enclosed EBA settlements are extant in the period *c.* 1800–1500 cal BC. Not all of them deserve the attribute of high ground, but the presence of walls and/or ditches indicates control of access. If we can trust the still weak chronological basis, powerful ramparts with an internal skeleton of wooden beams evolved in the course of the EBA in this eastern part of central Europe (cf. Furmánek *et. al* 1999; Bóna 1992). Further west, in Germany and France, fortifications of undisputed EBA association are rare exceptions. However, the spectrum of activities found on many plateaux in prominent positions clearly shows their importance in the settlement network of the period.[5] According to chronological markers, it seems that the widespread occupation of high ground did not occur together with the rapid expansion of metalworking techniques, but followed it with a certain delay. A common features of the sites in question is their excellent visibility in the landscape and, in many cases, their positions at potential routes of traffic, cross-roads, or river-crossings. The Frauenberg near Weltenburg in Bavaria, that overlooks the Danube before it cuts through a mountain ridge, can illustrate the argument. It is situated in a commanding position and could certainly not remain unnoticed to anyone passing along the river. The EBA settlement was probably not enclosed, for the first of several transverse ramparts was dated at 1200 cal BC (Rind 1999, 111). But, on the other end of the narrow passage, an EBA fortification could be identified on the Michelsberg near Kelheim (Fig. 5). Jockenhövel (1990) termed situations like these *Zwangspunkte*, that is, points that cannot be avoided.

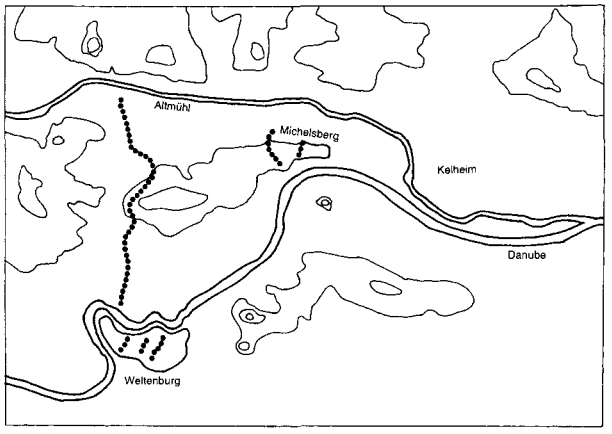

Fig. 5
The situation of the Weltenburg and Michelsberg hill-forts in the Danube valley near Kelheim Bavaria (Leicht 2000, Beilage 1).

As noted before, EBA settlements with enclosures are a regular phenomenon in two different regions: in eastern central Europe and in the Alps (cf. Fig. 6). Hill-top sites along the Danube and in the Slovakian mountains were linked by their important spectrum of finds to the so-called Tells of the Hungarian plain, though these represent a different phenomenon.[6] The Tells are sites situated on loess plateaus or sand ridges not originally significantly elevated but, nonetheless, protected against the annual floods of the rivers. Settlement debris were levelled up, in certain cases since the Neolithic, and centuries of occupation transformed a site into a distinct feature in the landscape. In general, the Tells were enclosed by natural watercourses and/or artificial ditches. In certain cases, clusters of low lying sites surrounded them and indicate an agglomerate settlement organisation.

In certain models of core–periphery interaction and settlement hierarchy, metal trade has been classified as a potential source of power (cf. Sherratt 1993; Shennan 1993; Brun 1993; Winghart 1997; David 1998; Kienlin 1999). Furthermore, it was assumed that members of EBA society had unequal access to wealth, an assertion based mainly on data from cemeteries. For instance, anthropological investigations in the Traisen valley indicated correlations between labour invested in burial, associated metal equipment, and body size of male skeletons (Heinrich & Teschler-Nikola 1991). Tells and hill-top sites were labelled as the places where metalworking and trade were organised. As explained before, these proposed links remain hypothetical in the case of the Traisen valley, where the hills are still unexplored.

The publication of the Feudvar project in the lower Tisza valley focused attention now in a new direction (Hänsel & Medović 1991; Falkenstein 1998). Feudvar will certainly be a landmark in the discussion, for the settlement sequence continued there throughout the 2nd and early 1st millennia BC. In this case, the whole plateau and the low ground around it were investigated together with the hill-fort that overlooks the Tisza plain. The results are therefore not punctual, but concern the internal organisation of an agglomerate site. In the already mentioned model of settlement hierarchy, metallurgy was an important element. At Feudvar the fit is good, for metalworking is well represented, for instance by a tool-kit for casting bronze. However, correlation does not imply causality.

The alpine region was only marginally included in the discussion, though the copper and tin trade is one of the pillars of the model and the copper mines of the Austrian Alps were productive during the EBA. Hill-top sites are pretty numerous, and some of them were enclosed with a stone wall. Their generally small dimensions (cf. Fig. 3) are in balance with the agrarian potential of their environs. Among the more recent investigations, the Klinglberg near St Veit, south of Salzburg, and Sotciastel in Val Badia in the Italian Alps are excellent, contrasting examples. In the Klinglberg case, Shennan (1995) proposed a coherent model of interaction between the copper producers of the site and the potential consumers in the prealpine area. The evidence from Sotciastel (Tecchiati 1998) is different though not incompatible, for interaction with the lowland area is a subject of interest, too. This site (Fig. 2), situated in the Alto Adige region of northern Italy on a rocky spur at 1400 m above sea level (asl), was occupied from 1900 cal BC onwards. The stone wall that protected the most accessible slope of the hill is quite well preserved, for it was not significantly affected by later periods of occupation. Though metal objects and a mould for casting axes were found, Sotciastel was not a site of specialised metallurgists or copper producers. The nearest copper resources are at a walking distance of two days, which seems too far for direct access, and furthermore, no traces of exploitation were found there. Hence, the priorities of economic life were certainly not the same as in the Austrian copper-belt, and we may conclude that copper metallurgy, though of undeniable

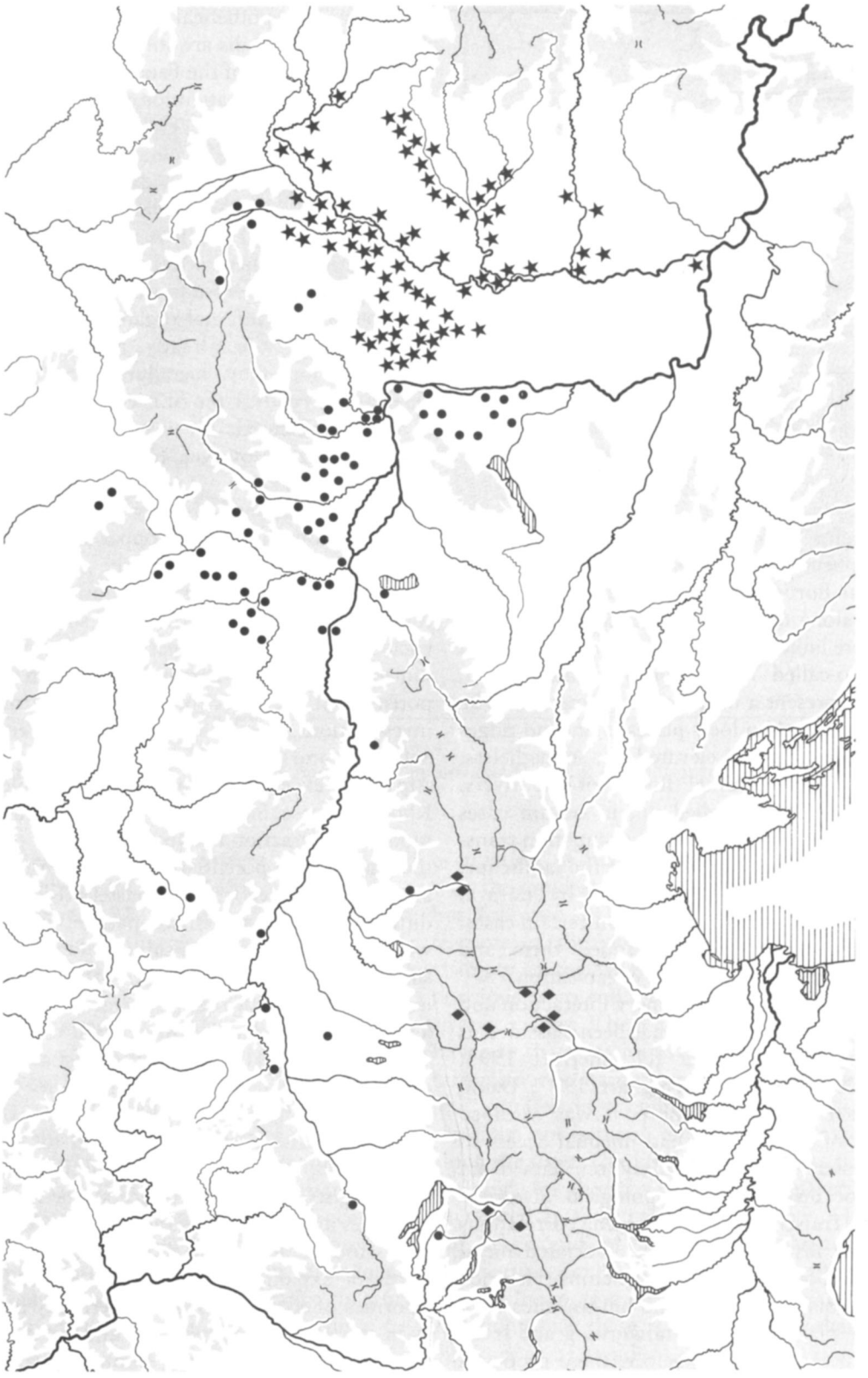

Fig. 6
Early and Middle Bronze Age sites with enclosures. Circles: hill-forts; stars: Tells; rhomboids: alpine sites with stone walls

importance, is not the magic wand that opens the door to EBA society. Among the small finds of Sotciastel, a distinctive category of unknown function and widespread occurrence stands out: leaf-shaped clay tablets with incised and/or stamped marks (Fig. 7). Together with a bead of blue glass paste they indicate that the site was embedded in a wider network of communication and exchange.

A CASE STUDY IN THE UPPER RHINE VALLEY

A similar situation emerged in the northern part of the central Alps. The upper Rhine valley (Fig. 8) is one of the northern gateways to the Alps. Stone enclosures are extant on several hills, but in most cases their date and/or function remained questionable. From 1985 to 1995, the Department of Prehistory at Zurich University conducted eight campaigns of fieldwork in this region. The municipality of Wartau, situated halfway between Lake Constance and the Grisons, was chosen for the diversity of its landscape, the agricultural potential and the position near a cross-road. The area under investigation covers 42 km^2 and consists today of five separate villages interspersed between the valley bottom at 420 m asl and the following terraces up to 650 m. A broad range of forests and pastures extends on the higher terraces and the steep slopes, up to the mountain peaks at 2300 m. The Wartau project differs from previous investigations in the Rhine valley by the broader consideration of landscape aspects.

It is frequently assumed that settlements on high ground were the normal type of habitation in the alpine and pre-alpine river valleys, where the valley floor was seasonally flooded. However, the lower terraces and the alluvial fans of the brooks offered better opportunities for settlement purposes than the dry limestone formations that project into the valley. Earlier research was largely concentrated in these

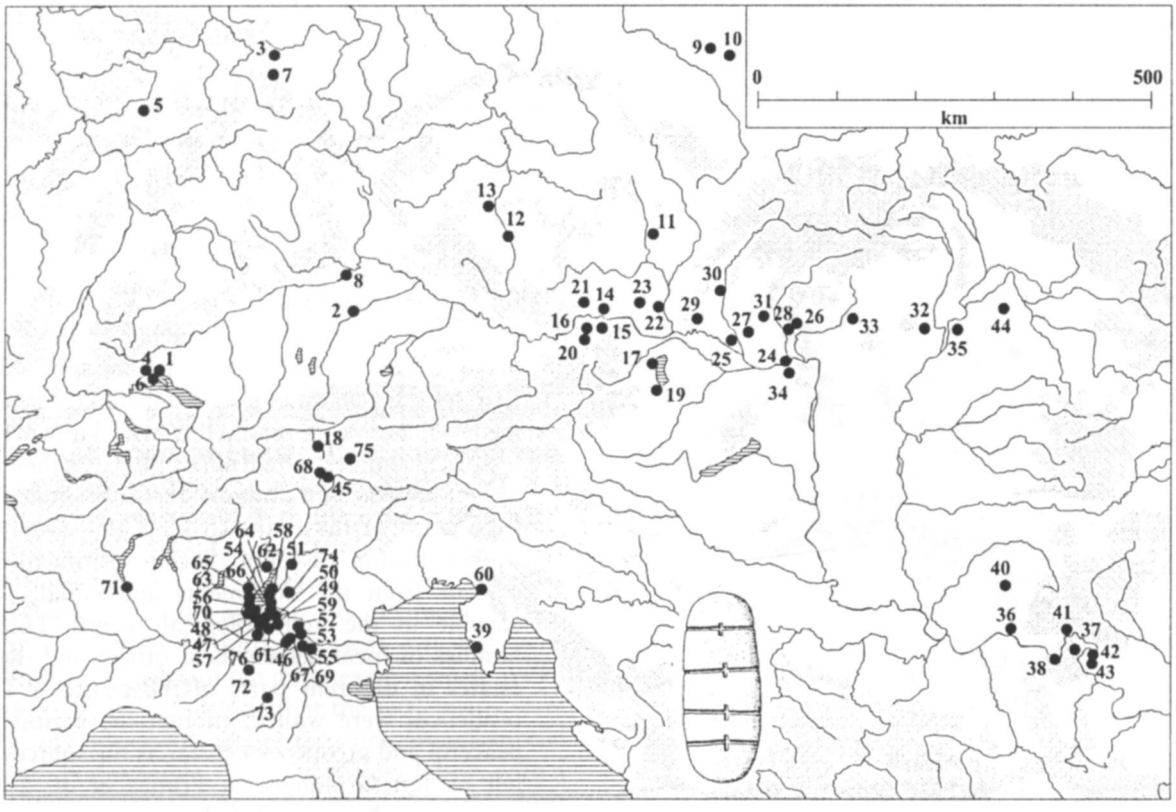

Fig. 7
Leaf-shaped clay tablets (Rind 1999, 92, fig. 15)

positions, which were easy to find and rewarded the investigators with stratigraphic information. Meanwhile, settlements at the edges of the valley floor and on the lower terraces can be found, and a more varied settlement structure begins to emerge.

We investigated paradigmatically the most salient hill of the area, named Ochsenberg, which means 'ox-hill' (Fig. 9). The site has an extension of 5000 m^2 and an almost triangular surface, with cliffs on two sides and a terraced slope downwards to the Rhine that flows 200 m below. The plateau is optimally visible in a radius of 7–10 km, and the motto that promoted the occupation of this place could have been 'to see and to be seen'. However, no fresh water is available and the place was therefore rather ill-suited for permanent settlement. Nevertheless, a late medieval tower occupied the southern spur, of course with a water tank cut in the bedrock.

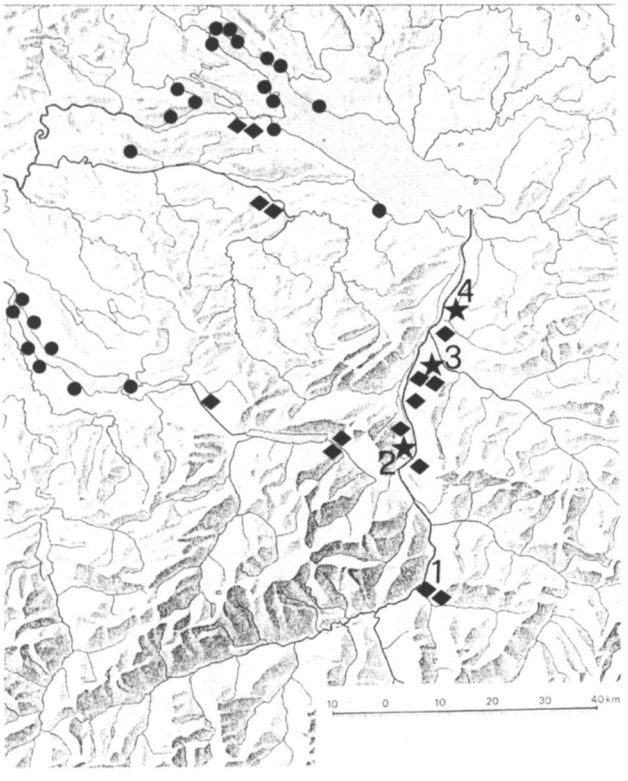

Fig. 8
Settlement sites between Lake Constance and the Grisons. 1 Chur; 2 Wartau; 3 Schellenberg (Liechstenstein; 4 Koblach (Vorarlberg, Austria). © Swiss Federal Office of Topography (BA024020)

The prehistoric sequence started around 4300 cal BC with repeated, but not permanent occupation. After a gap of several centuries, new activities followed at 2200 cal BC and were considerably extended from 1800 cal BC onwards. A stone wall was constructed along the eastern side, facing the Rhine valley. Its inner line consisted of large blocks, while smaller stones were used for the external wall and the fill between them (Fig. 10). The material had been broken from the limestone outcrops of the plateau. Settlement activities were concentrated in the centre of the site and continued throughout the later phases of the Bronze Age, up to 800 cal BC. In the 5th century BC the function of the site changed drastically. The new activity can be described as a fire ritual, which included the deposition of weapons, mainly bronze helmets and iron spearheads affected by heat (Schmid-Sikimić 1999). A thick layer of calcinated animal bones was found in the centre of the burning place. During the Roman period metal deposition continued, but now essentially coins and ornaments were involved, and the fire ritual ceased. The next and last settlement activity before the construction of the late medieval fortress occurred from 600 to 800 AD and left features astonishingly similar to those of the Bronze Age (Primas *et al.* 2001). A stone wall was built along the eastern edge of the plateau, in touch with the ruins of the earlier wall (cf. Fig. 10). It enclosed an estate with stone-lined buildings and a repertory of finds that attests a family of the local elite with trans-alpine connections.

The investigations raised several questions:

1. The first refers to the social context that promoted the construction of a stone enclosure in two periods separated by 2.5 millennia. The early medieval period is reasonably well known from historical sources. The Rhine valley was then part of an almost autonomous territory under the supremacy of the Frankish king and gouverned by the bishop of Chur. Social stratification is evident from the documents and equally well feasible in the archaeological record. Leading families of local descent held offices and owned estates in different parts of the territory. Their residences were walled, though the period was peaceful and prosperous, as far as the sources can tell us (cf. Grüninger in Primas *et al.* 2001). Therefore, the stone facade of the Ochsenberg was first of all a visual message of presence and prominence directed towards the Rhine valley.

Fig. 9
The Ochsenberg at Wartau (canton St. Gallen, Switzerland). Air photograph by Kantonsarchäologie St. Gallen and Zurich

Protection against unfriendly actions could have been a more secondary aspect. The EBA occupation occurred under different conditions. There is no evidence for an inter-regional power structure during this period. However, a stone wall on a hill was a sign of presence anyhow.

2. Who were the nearest neighbours? In order to understand the function of the hill-top site in the local settlement network, we investigated the surrounding area and found two sites of interest. A coeval settlement was located 50 m below at the western foot of the plateau on a terrace exposed to the south. The good agrarian soil and the surrounding pastures could easily have supported a community of 200 individuals. A well and a running brook provided the necessary water. This settlement and the Ochsenberg were clearly connected and formed an agglomerate site with a high ground that depended from the water and fields on the terrace (a comprehensive discussion will appear in Primas *et al.* forthcoming). A third site was situated in a walking distance of ten minutes on a small, rocky spur. We may conclude that the settlements were locally dispersed parts of the same organisational unit. For example, the same pottery fabric, with a distinct serpentine temper was used in the three places. An indicator of a possible special function of the hill-top site is the concentration of storage pits found there and the absence of these features on the terrace. It is evident that the plateau was never occupied by an ordinary farmstead. During the later periods, it was under elite control or used as a ritual place. These alternatives cannot be excluded for the EBA either, though the standards were certainly different.

On the regional level, there is evidence for agglomerations of similar layout (Fig. 8). Two other hill-top sites were situated on the eastern bank of the Rhine at distances of about 15 km, each of them with traces of additional settlements in its environs.[7] Together, they controlled an area of 200 km^2 between Lake Constance and the cross-road that connects the Rhine valley with Lake Zurich. I suppose that the occupation of the strategically important hills above the river plain can be understood as a message of land tenure.

3. Was traffic a relevant activity? The position of the Ochsenberg raised this question and the answer was moderately affirmative. The horse was present in the settlement but its meat was not consumed. In the repertory of artefacts, a bronze pin imitates a Danubian shape, and the fragment

Fig. 10
The stone walls of the Ochsenberg A. Early Bronze Age. B. Early Medieval. 1:100

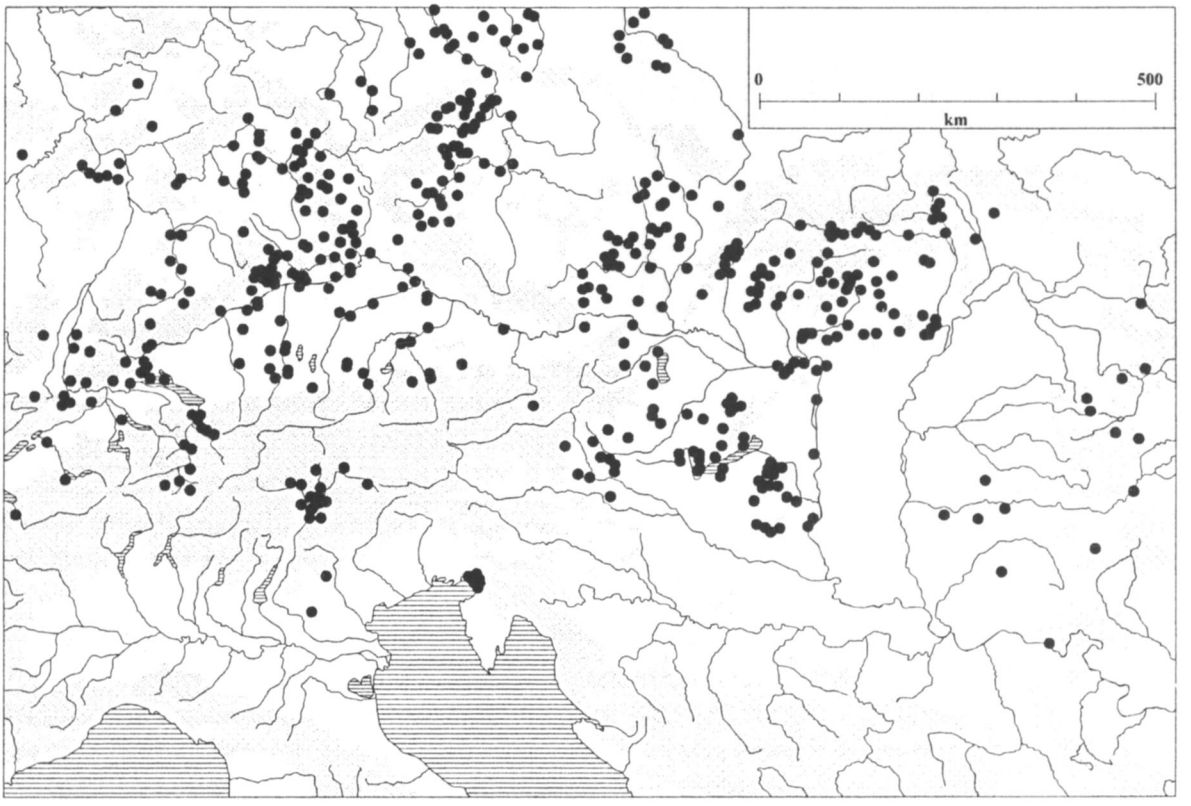

Fig. 11
Late Bronze Age hill-top sites in central Europe (Rind 1999, 7, fig. 2)

of a clay object with grooves seems to be related to the leaf-shaped items discussed above in connection with Sotciastel. This class of objects was made locally with more or less close reference to a prototype and occurred mainly in settlements and only exceptionally in graves. As the distribution map shows (Fig. 7), they were found in a wide area between Lake Constance in the west and the Iron Gates in the east. Hence, it seems that a network of communication linked communities of different size and prosperity along the Danube and on both sides of the Alps.

LATE BRONZE AGE HILL-FORTS

The density of hill-top sites constructed during the final phases of the Bronze Age is unprecedented and remarkable, even if we are well aware that the map published by Michael Rind (1999) shows an aggregation of several centuries (Fig. 11). Many of these sites were well defended. The sequence of activities on high ground was probably more varied and more complex than earlier models assumed. According to an expanding body of evidence, wooden enclosures were constructed in almost every phase of the LBA, and Middle Bronze Age (MBA) precursors exist, too. The Heuneburg plateau in the upper Danube valley, famous for its Early Iron Age wall, was already fortified a millennium earlier with a wooden wall laid out in a grid scheme (Gersbach 1989, 49 ff). And this was not an exception, as recent fieldwork in Bavaria could demonstrate. For instance, the first fortifications identified on the Bogenberg near Straubing go back to the MBA, but periods of heavy rain affected their traces significantly (Putz & Schauer 2001). Radiocarbon age determinations of burnt wooden posts and beams at Bernstorf near Freising indicate that this important site was enclosed by a rampart with probably more than a single phase of

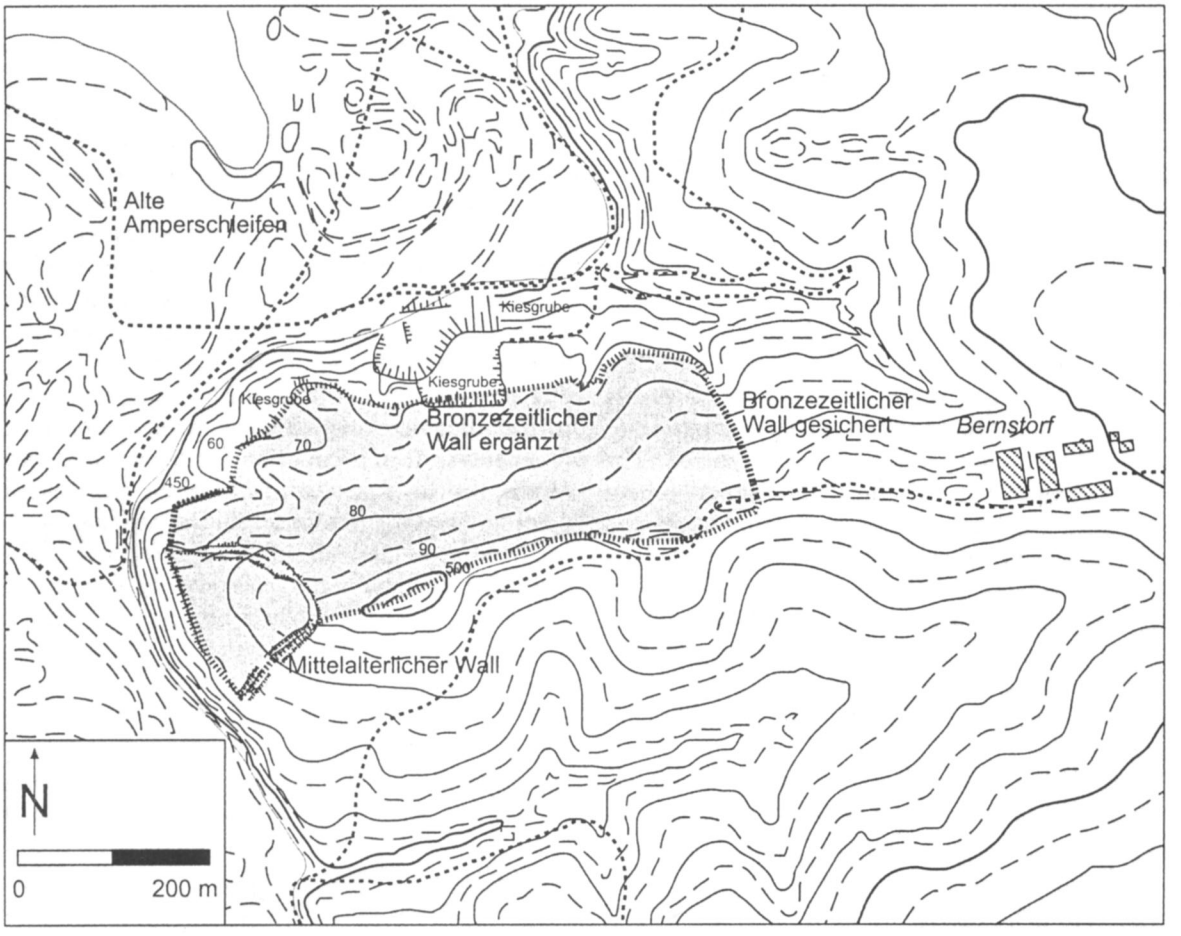

Fig. 12
The Bernstorf hill-fort, overlooking an old course of river Amper (Moosauer *et al.* 1998, 271, fig. 2)

construction *c.* 1675–1330 cal BC. Furthermore, tree-ring analysis gave a *terminus ante quem* of 1360 BC for one of the hitherto investigated samples. The site gained additional attention in 1998 when a spectacular assemblage of gold items came to light (Figs 12 & 13). According to the date of a wooden rod preserved in one of the gold ornaments (*c.* 1400–1100 cal BC), they can probably be connected with activities that followed closely on the construction of the rampart (Moosauer *et al.* 1998; Gebhard 1999; Gebhard & Rieder 2000). It is too early to determine the type of activity, but the elaborate metalwork indicates elite behaviour.

However, contrasting evidence is not missing. A considerable number of hill-forts were occupied *c.* 1000–800 cal BC, and their spectrum of finds proved to be very uneven in number and material. Two basic types of fortifications are in evidence: Stone walls occurred in France, as exemplified by the impressive sequence of Etaules in the Côte d'Or region (Fig. 14), which is not an isolated case (Etaules, Le Châtelet: Nicolardot 1997; for a general overview of fortifications in France see Buchsenschutz 1984). From Germany to Slovakia a different scheme was current. Ramparts here were normally constructed with an internal grid of beams filled with clay and small stones. For the facade combinations of stone and wood were used in varying arrangements. All this is well established, but the role of these installations remained disputed. Their position in the landscape, the density of settlement debris behind the walls, and the size of the enclosed area differ widely and indicate

differential functions that have to be investigated systematically. Several authors attempted a closer classification in different types, using either size and layout of the sites themselves, or their position in the micro-regional cultural landscape.

Jockenhövel (1990) proposed a scheme of three types, differentiated according to their embedding in the settlement system of the surrounding area. His third type, fortifications in a commanding position at cross-roads and river crossings, is clearly a category of general importance in continental Europe, represented in different periods from the Neolithic to the Middle Ages. As Jockenhövel rightly stressed, these places were not continuously inhabited. From one period to the other, distinct shifts in occupation occurred. The underlying criteria of selection and abandonment deserve further investigation. The remaining types in Jockenhövel's scheme were tentatively labelled as central places on one hand, embedded in wider networks of smaller settlements, and large, autonomous sites on the other hand, where population was concentrated. Ongoing fieldwork in the river plains will show, whether the definition of the last group has to be modified.

In Slovakia, Furmánek *et al.* (1999) obtained similar results with certain modifications. In this region, hill-forts were already present in the EBA, and the LBA fortifications seem to be separated from their precursors by a distinct period of latency. They were only exceptionally found at the same places. The Slovakian repertory of LBA sites was divided in two classes according to their relative altitude in the local landscape. The first class is situated at less than 100 m above the valley floor, while the second is characterised by a difficult access with 300–500 m of ascent. For obvious reasons, these sites on high ground are absent in the Danube plain and concentrated in the interior of the mountain range. As few of them were investigated internally, information on settlement structures is largely missing. In a case-study at Zemianske Podhradie (Fig. 4), Veliačik and Romsauer (1998) found buildings of more than one phase, but the embedding of the site in the surrounding territory requires further investigations. A general shift in occupation occurred at the very end of the Bronze Age. As observations from Germany down to Slovenia (Dular 1999) showed, enclosed sites of Iron Age date hardly ever followed a LBA precursor.

WHY HILL-FORTS?

The majority of ramparts in Central Europe was constructed at the virtual summit of Bronze Age civilisation, and the regional settings proved to be even more diversified than the fortifications themselves. According to size, traces of activity, and embedding in regional networks, very different schemes are apparent:

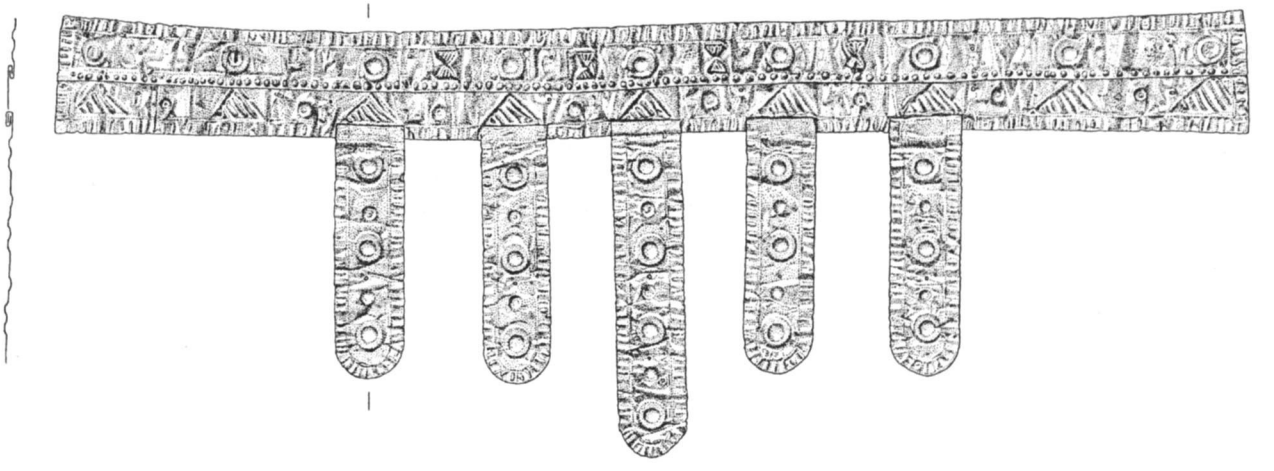

Fig. 13
Gold ornament from Bernstorf (Gebhard 1999, 6, fig. 8). Actual length 430mm (3:8)

1. A small number of hill-forts surpasses median size of 2.5 ha by far (Fig. 3). With more than 88 ha, the Houbirg near Nürnberg (Abels 1982) is one of the largest among them, and the Bullenheimer Berg in northern Bavaria (Diemer 1995) the best investigated so far. In the second case, the circular rampart enclosed an area of 30 ha, and transverse ramparts subdivided it further. Traces of activity followed most densely behind the fortification, which showed several phases of construction and reconstruction. Water was available on the plateau and settlement remains were clearly identified. Furthermore, the Bullenheimer Berg stands out for the quality and quantity of metal objects found as hoards and dispersed finds. The influence of an elite is therefore probable, though the determination of its role is guesswork and the type of activity open to debate. It is too early for a balanced account of elite life-style and performace. Existing models rely heavily on graves and hoards, ignoring the important question of who owned the land.
2. Sites situated near cross-roads and in other 'unavoidable positions' were a continuous phenomenon. In the LBA sample they do not dominate numerically and not all of them were transformed into strongholds. An example from the alpine region, the Hohen Rätien in the Grison's canton of Switzerland, may illustrate the argument. It is a rocky outcrop near the confluence of the Albula and Hinterrhein rivers (Della Casa *et al.* 1999). Today, the San Bernardino pass route and the route to the Engadin valley diverge at the foot of the rock. On the plateau, a LBA occupation without a wall preceded a late Roman stronghold with a wall, and an equally walled medieval castle and church followed it.
3. Fortified settlements on isolated hills in an open landscape stand out as an important though not a homogeneous group. Some of them were surrounded by a highly productive agrarian environment. The Glauberg near Frankfort is an important example of this type.[8] Behind the fortification, houses were arranged in rows, and a water pool assured life under convenient

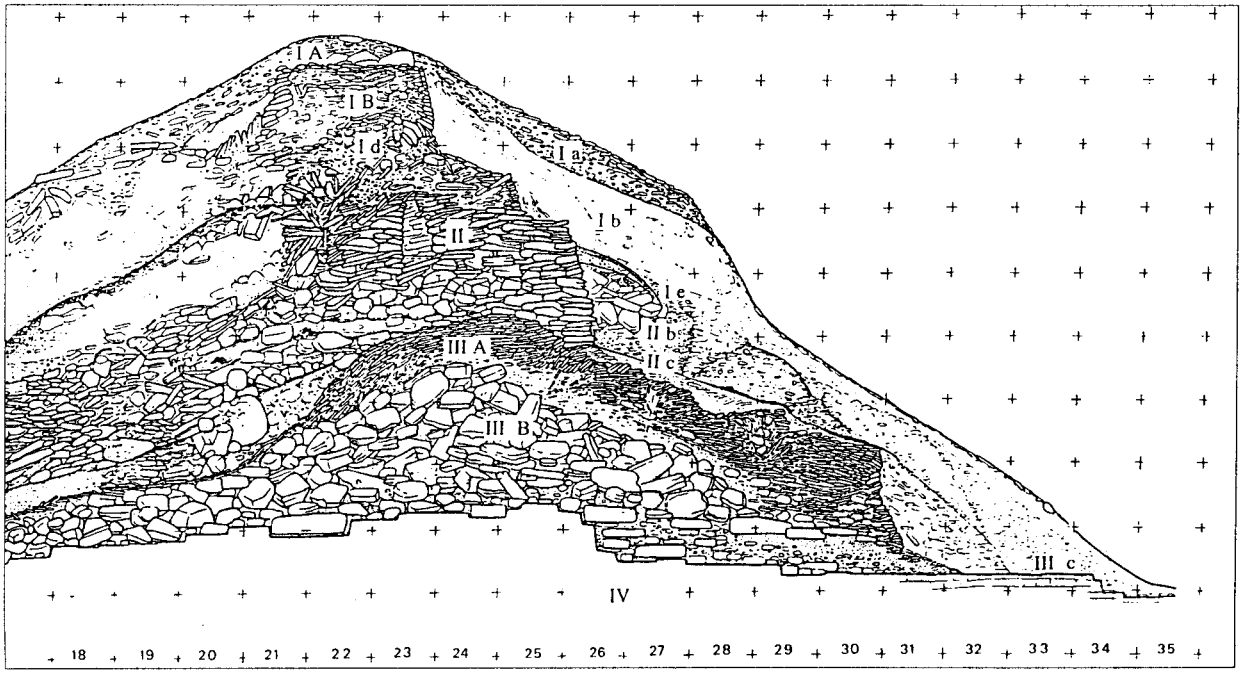

Fig. 14
The stone walls of Etaules, le Châtelet, Côte-d'Or, France: I Early Iron Age; II Late Bronze Age; III Neolithic (Nicolardot 1997, 151, fig. 3)

conditions. With 8 ha, it is a site of medium size. In other cases, however, the environs were rather ill-suited for farming activities. The Hexenberg near Strasbourg in the Rhine valley, a plateau of 6 ha, is a case in question (Adam & Lasserre 2001). It is situated in the river plain, surrounded by marshes and intermittently flooded woodland (Fig. 15). The reason of its existence seemed difficult to determine, and the investigators left the question open for the moment.

4. For a numerically quite important group of hill-forts the aspect of enhanced security is suggestive, though the evidence is not unequivocal. At present, arms are not a frequent category of finds in hill-top sites, and strongholds with a military crew cannot be substantiated in more than exceptional cases, for instance the Heunischenburg in northern Bavaria (Abels 1993). However, there are other arguments. The choice of a strategically important site, potentially commanding a lowland area with settlements and routes of traffic, together with a default of extended, permanent settlement structures, hints in this direction. Recently, we surveyed a site of this type, the Rhinsberg.

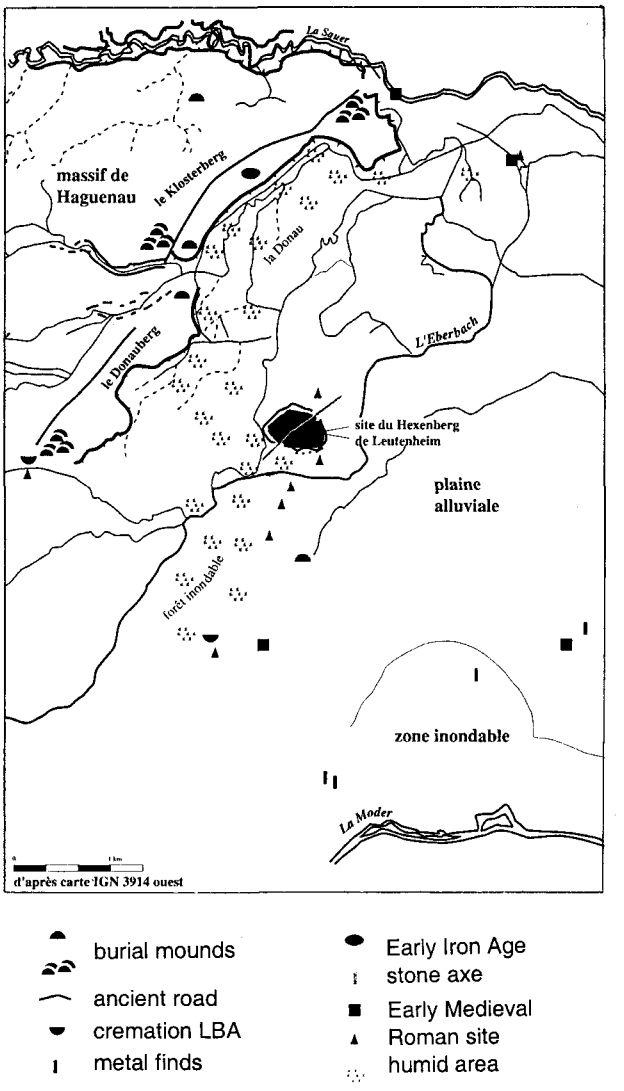

Fig. 15
The Hexenberg (Alsace, France) in its environs (Adam & Lasserre 2001, 313, fig. 2)

THE RHINSBERG HILL-FORT

Along the northern border of Switzerland, fortifications are extant on several elevations that overlook the Rhine. As they are normally covered with forests, fieldwork has to be coordinated with the forestry service, and this we did on an elongated hill in the canton of Zurich. A transverse rampart cuts the southern part of a triangular plateau situated 150 m above the valley floor (Fig. 16). Fieldwork proceeded in three steps: First, surveys were conducted across the plateau and along its western edge, which seemed to be artificially modified. Then drills and small soundings followed. They indicated that the wide central part had not been used for settlement and other charcoal producing activities. The absence of metal objects was tested with a detector. Likewise, the eastern margin of the plateau, that falls down to the river with a steep cliff, seemed to be a dead end of the site.

Test excavation started at the foot of the transverse rampart, where traces of settlement activities and LBA pottery were found. It is not yet possible to determine the type and permanence of occupation represented by the observed post-holes and a rather loose stone pavement. Fireplaces are missing, and the density of pottery is low. The most significant results were obtained along the western facade of the plateau. LBA pottery occurred more abundantly; a compact stone pavement as well as burnt timbers indicated either a road along the margins of the site or floors of buildings. The modified edge and upper slope of the plateau contained the foundation of a rampart

constructed with stones and horizontally disposed timbers of oak (Fig. 17). It was possible to obtain a tree-ring date for the construction. As bark and cambrium were missing in the sample, only a *terminus ante quem* of 941 BC can be given. Furthermore, several accelerator radiocarbon dates were measured. From a methodological point of view the age determinations obtained for two oak beams are instructive. These timbers were found disposed parallel to each other, and the samples were taken from the last three rings preserved. The time-span indicated by the radiocarbon dates is rather broad,[9] but previous botanical examination indicated provenance from one and the same big tree. The dates are: 2740±55 BP; 1000–800 cal BC (ETH-22987) and 2900±60 BP; 1230–910 cal BC (ETH-22988).

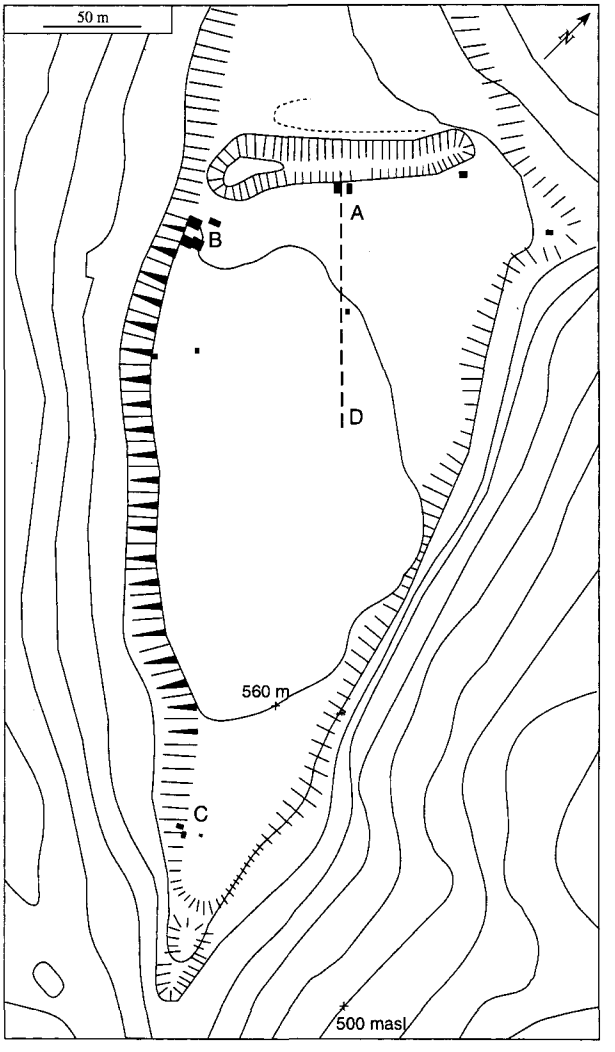

Fig. 16
Investigations on the Rhinsberg hill-fort near river Rhine (canton Zurich, Switzerland). In area B the Late Bronze Age rampart was found (cf. Fig. 17)

It is evident that the calibrated age spans overlap, and the longevity of oaks seems to be the main cause of the small overlap in this case. Clearly, botanical criteria have their special merits for the analysis of wooden structures. The period around 900 cal BC indicated by one of the samples plus the tree-ring date, fit nicely with the pottery and with a bronze pin of the vase-headed type, which is one of the diagnostic elements in LBA lake-side settlements.

The Rhinsberg plateau is a good example of a well defended hill-top site with a low level of settlement activities. It is certainly not an atypical case, for parallels were reported in other regions (Furmánek *et al.* 1999, 121). Though the majority of hill-forts – including the Rhinsberg – were investigated on a small scale, disparities in the amount of settlement indicators are evident: pits and pottery, two diagnostic elements of household activities, are very well represented in certain sites even after limited excavations, while they are sparse in others. Hence, the ascription as 'settlements' does not seem appropriate for the latter group. In a social territory of a certain complexity, different types of activities and concerns will cause different arrangements in the landscape. The early medieval period offers an ample repertory for model-building.

At 2.5 ha, the Rhinsberg belongs to the small hill-forts. As discussed before, it was certainly not a place where an elite deposited metal hoards. The absence of a water source behind the fortification is a sound argument against its qualification as a refuge for humans and their livestock. Water is available on the lower terraces, but for a stronghold under attack this would create serious problems. However, a LBA rampart, *c.* 300 m long, was constructed probably for good reason. The situation at the hill foot below the rampart may hold the clue. Recent archaeological research along the Rhine and its tributaries raised the number of Bronze Age sites considerably. In earlier summaries of the evidence, the density of settlements along the north-alpine lakes was set into contrast to the only marginally inhabited river valleys. For the Bronze Age, this scheme proved to be wrong. Favourable climatic conditions during a considerable

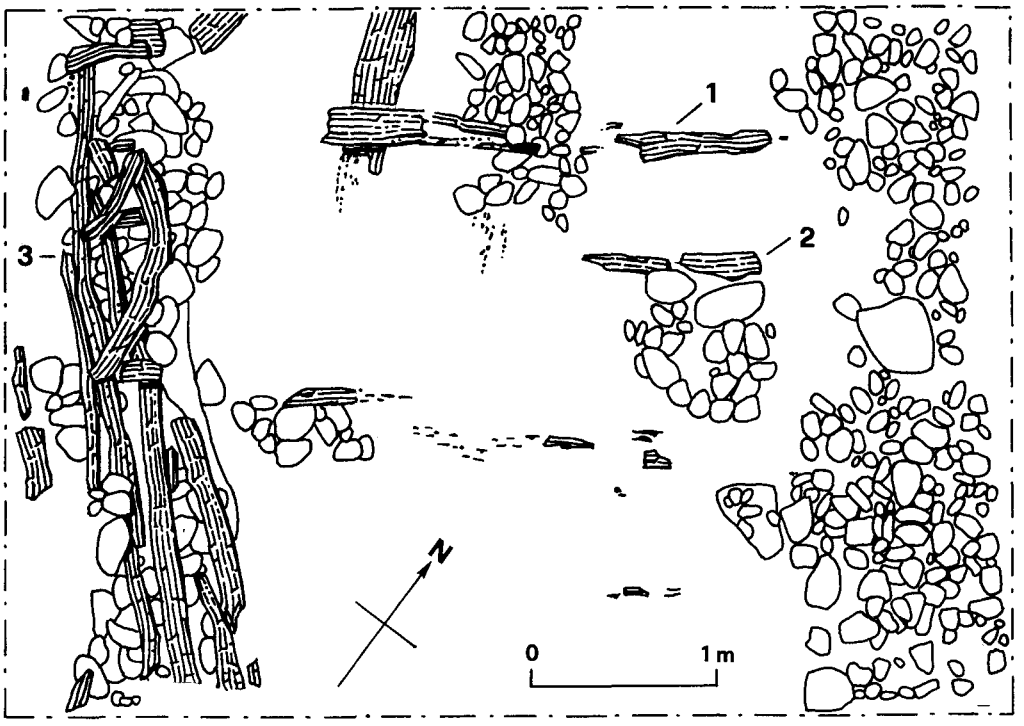

Fig. 17
Foundation of the LBA rampart on the Rhinsberg. 1, 2 oak beams with radiocarbon dates mentioned in the text; 3 oak beam with tree-ring date

part of the period permitted settlements to be established on previously risky ground. The humid areas in these valleys probably diminished, and land use expanded. Recent surveys and excavations on the terraces of the Rhine unveiled an important increase in human activities from the MBA onwards. Therefore, the Rhinsberg was not situated in isolation. An other hillfort was found 30 km north of the river, at the entrance to the black forest region (Behnke 2000, 167 ff), and more can be expected, for the number of undated ramparts is considerable. If the communities that lived below a hill left it unoccupied, then they would have risked that potential raiders could operate from these strategic positions downward.

To sum up: hill-forts were a regular feature of the LBA cultural landscape. Size and layout varied according to local conditions, and a unity of conception in their organisation cannot be demonstrated. The explanation most consistent with the observed facts would be to recognise them as witnesses of a progressive social formatting of the landscape.

CONCLUSIONS

In a long-term perspective, a key constituent of the social organisation in central Europe was instability. From the Middle Neolithic onwards this led to frequent shifts in settlement location and prevented the installation of permanent power structures. Prolonged phases of relative stability occurred during the Early and Late Bronze Age. The EBA evidence indicates a process of reorganisation and expansion. Mobility was a factor of considerable influence. It promoted the permanent occupation of marginally inhabited areas and the installation of hill-top sites at cross-roads and river-crossings. Technological standards were shared on an inter-regional scale, as the success of tin bronze metallurgy demonstrates. Altogether, there is good evidence for prosperity and a functioning system of communication and interaction. Sites with powerful enclosures were not a regular phenomenon, and explanations should therefore be searched at the regional level.

The LBA boom of hill-forts coincided with an increase in the secondary and tertiary sectors of

production. For instance, salt mining in the Austrian Alps started during this period (Barth 1998), and metalworking was practiced in almost every village. Woodland diminished, and former areas of wilderness were incorporated in the cultural landscape. From large-scale investigations, a high density of settlements in almost every topographic situation is assured, with farmsteads, villages, and hill-forts. According to the results of research on the regional level, the LBA hill-forts, small and large, were connected with a system of land division and territorial control, that could be maintained for several centuries. We do not know whether an acknowledged system of peace regulations governed the political relations of this period, but surely, alliances must have been just as crucial as fortifications. Be that as it may, around 800 cal BC the system was overturned. Grave ritual changed, a new settlement layout emerged, and new hill-forts were built in different places.

In conclusion, from the LBA onwards, hill-forts were well established corner-stones in the central European mosaic of cultural landscapes. Their role was not uniform and responded to regional conditions. Subsequently, the phenomenon of hill-top occupation did not disappear at any time, but the selection of sites changed repeatedly, and change occurred in accordance with other signs of discontinuity. With current investigations in the regional settings of hill-forts and a more rigorous chronological control we intend to proceed to a better understanding of the processes involved. It seems appropriate to close with a statement of the late Professor Grahame Clarke: 'In seeking explanations for cultural change it is always important to bear in mind the potential importance of non-rational, even random or accidental causes'. "

Endnotes

[1]For instance EBA lake-side settlements with palisades: Concise-sous-Colachoz in western Switzerland (Wolf *et al.* 1999) or the Forschner site at the Federsee in southern Germany, (Torke 1990). The EBA fortifications investigated in southern Slovakia are mainly situated on a river terrace not more than 10 m higher than the flood plain (Furmánek *et al.* 1999).

[2]Relevant examples are the Feudvar project (Hänsel & Medović 1991; Falkenstein 1998) or the investigations on and around the Bogenberg near Straubing in Bavaria (Schauer 1998; Putz & Schauer 2001).

[3]Radiocarbon dates were calibrated using the actual Pearson curve. In the text, all dates are expressed as cal BC.

[4]Both are sites with ditches. The first is situated on a hill, the second on a terrace and hence not significantly elevated.

[5]Simon (1990) mapped the presence of EBA pottery on hill-top sites in Saxony. Conclusive evidence for coeval enclosures is missing. The same is true for southern Württemberg, where Biel (1985) defined the time of occupation with the spectrum of finds.

[6]For an overview of research see Bóna (1992). For a discussion of chronological and regional differentiation see David (1998). For fieldwork in the Tisza region see Kovács & Stanczik (1988).

[7]The Eschener Berg or Schellenberg in the principality of Liechtenstein was occupied in almost every period. It is an *Inselberg* situated in a strategic position with several separate peaks. Stone walls of different periods are known, but the documentation does not permit close dates. EBA occupation is well represented on the Borscht peak (Maczyinska 1999). Further to the north, a second *Inselberg*, Koblach-Kadel, is situated in the western part of Austria, Vorarlberg. Stone walls are present, but their precise chronological position has to be checked with new excavations. The latest phase of the EBA is very well represented in the spectrum of finds, that includes bronze axes and amber beads in addition to a large assemblage of pottery (Fetz 1988).

[8]The Glauberg is best known for the important early La Tène tumulus burials below the plateau that was fortified in different periods. For an overview of the LBA settlement structure and finds see Herrmann (1966, 8f).

[9]The samples were dated with AMS technique by Dr G. Bonani, Accelerator Mass Spectrometry Radiocarbon Laboratory, ITP Eidgenössische Technische Hochschule Hönggerberg, CH-8093 Zurich, Switzerland.

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